

ELECTRICAL FAULT FINDING ON TSHR AND TSHRE CONTROL SYSTEMS FEBRUARY 2016

<u>Symptom</u>	<u>Possible Cause</u>	<u>Remedy</u>
Temperature display blank	<p>230V mains supply turned off/ failed</p> <p>Temperature control module turned off</p> <p>Supply fuse in control cabinet tripped</p> <p>4 amp control board fuse in cabinet tripped</p> <p>Temperature control module failed</p>	<p>Check supply fuse/turn on etc</p> <p>Turn on temperature control module using "X" button. <i>(Note. in normal operation the "X" button is disabled and unit supply is on when mains supply is connected to system)</i></p> <p>Re-set fuse</p> <p>Re-set fuse</p> <p>If 230V present on wire 20 (terminal 7 on control unit) then controller module failed, controller should be replaced</p>
"OR" on Temperature display	<p>Temperature sensor disconnected, or broken.</p>	<p>Check sensor is plugged into control box or if sensor wires are broken, plug in or replace sensor. <i>(Note. fan and pump will default to ON until fault rectified)</i></p>
Negative value on Temperature display.	<p>Reverse connection of temperature sensor.</p>	<p>Check sensor plug is inserted into connector socket on control box correctly, one pin is smaller than the other.</p> <p>Swap over sensor input connectors on rear of temperature controller</p>
Fan not running	<p>Supply fuse in control cabinet tripped</p> <p>6 amp fan supply fuse in cabinet tripped</p> <p>Fan speed control potentiometers set to 0</p>	<p>Check & re-set fuse</p> <p>Check & re-set fuse (TSHR systems)</p> <p>Adjust fan speed controls to required speed.</p>

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<p><u>3 Phase FAN Systems Only</u> System is fitted with a single phase to 3 three phase converter for motor control. Extreme care should be taken when servicing this module as high voltages may be present on the control inputs etc.</p>	<p>Fan on/off switch in OFF position</p> <p>Green "Fan Timer Finished" indicator ON.</p> <p>Boiler temperature above set temperature (OUT1), amber "Control Temperature Achieved" indicator ON</p> <p>Fan speed control potentiometer failed</p> <p>Fan control relay failed, (<i>Note. check relay pushed fully into mounting socket</i>)</p> <p>Fan control relay supply failed</p> <p>Fan Failed</p> <p>20 amp supply fuse in cabinet tripped</p> <p>3 phase module failed or in fault condition</p> <p>Motor control overheated</p>	<p>Turn fan on/off switch to ON position</p> <p>Boiler cycle completed press Green button when ready to start next cycle.</p> <p>Wait for boiler temp. to drop below set temp (OUT1), fan will automatically re-start</p> <p>Replace fan speed control potentiometer</p> <p>230V present on wire 2 but not on wire 7. replace relay</p> <p>230V not present on wire 3, replace 12 hour timer</p> <p>230V present on wire 7 AND speed control potentiometer OK, replace fan</p> <p>Check system and re-set fuse.</p> <p>Check green status light on control module is ON</p> <p>Check red fault light on control module, count number of flashes before contacting FARM2000 for advice.</p> <p>Clean/replace ventilation filters</p> <p>Replace external cooling fan</p>
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<p>Fan runs for 2-3 mins and stops</p>	<p>Press and hold Green Button for min 5 secs.</p>	<p>Re-try, if problem persists replace 12 timer assembly.</p>
<p>Fan runs continuously regardless of timer setting</p>	<p>12 hour fan timer board failed</p>	<p>Replace 12 hour timer assembly</p>
<p>Fan ONLY operates in Soft Start mode</p>	<p>Soft Start timer failed (check timer delay period completed)</p> <p>Soft Start control relay failed, (<i>Note. check relay pushed fully into mounting socket</i>)</p>	<p>If 230V present on wire 4 but not on wire 14 and RED fan control relay status light OFF replace timer</p> <p>230V present on wire 2 but not on wire 7 Red relay status light ON. Replace relay</p>
<p>Fan ONLY runs at Full Speed</p>	<p>One or both fan speed control potentiometers have lost the ground signal (blue wires)</p>	<p>If both soft start and main speed controls run at full speed only check soft start relay is pushed fully home.</p> <p>If soft start only or main speed only controls run at full speed check soft start relay is pushed fully home and/or check specific control potentiometer wiring (blues wire specifically)</p>
<p>Pump not operating</p>	<p>Pump failed</p> <p>Supply fuse in control cabinet tripped</p> <p>6 amp pump protection fuse failed</p> <p>Boiler temperature less than pump operating temperature set on temperature controller (OUT2)</p>	<p>Check and/or replace pump</p> <p>Check and re-set fuse</p> <p>Check and re-set fuse (TSHRE systems)</p> <p>Wait for boiler to achieve set pump operating temperature.</p>

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	<p>Temperature controller failed</p> <p>Pump control relay failed, (<i>Note. check relay pushed full into mounting socket</i>)</p>	<p>Adjust OUT2 to lower value.</p> <p>230V present on wire 20 but not on wire 19, replace temperature controller. Red pump control relay light not illuminated</p> <p>230V present on wire 2 but not on wire 8, red pump control relay status lamp on. Replace relay</p>
<p>Damper not operating</p>	<p>Damper mechanism mechanically jammed</p> <p>Damper plug loose or fallen out</p> <p>Damper motor failure</p> <p>Damper delay timer failed</p> <p>Damper control timer failed</p> <p>Damper control relay failed, (<i>Note. check relay pushed full into mounting socket</i>)</p>	<p>Check mechanism and clear any blockage, by depressing clutch on motor, damper should be free to rotate by hand.</p> <p>Push damper connector fully home and tighten locking collar</p> <p>230V present on wire 11, no damper rotation. Replace damper motor</p> <p>230V present on wire 12 but not on wire 15, replace timer. Red delay timer status lamp on</p> <p>230V present on wire 15 but not on wire 17 when green status lamp on timer is on, replace timer</p> <p>230V present on wire 17 but not on wire 11, Red damper control lamp illuminated. Replace relay</p>

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<p>Damper not re-setting (homing)</p>	<p>Green button pressed to re-start combustion cycle, or power supply is interrupted, before total time set on main timer has elapsed (i.e. green fan timer finished indicator not on)</p> <p>Damper mechanism mechanically jammed</p> <p>Damper control relay failed, (<i>Note. check relay pushed full into mounting socket</i>)</p> <p>Damper motor failure</p>	<p>Damper will only automatically re-set after the main timer has completed the set period.</p> <p>If the green button is pressed or the power supply is interrupted before the timer has finished, the damper must be manually re-set</p> <p>Check mechanism and clear any blockage, by depressing clutch on motor, damper should be free to rotate by hand.</p> <p>230V present on wire 10 but not on wire 18. Replace relay.</p> <p>230V present on wire 18, no damper rotation. Replace damper motor</p> <p>230V present on wire 18 when green home lamp illuminated, no damper rotation (this assumes damper is not already at home/start position). Replace damper motor</p>
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